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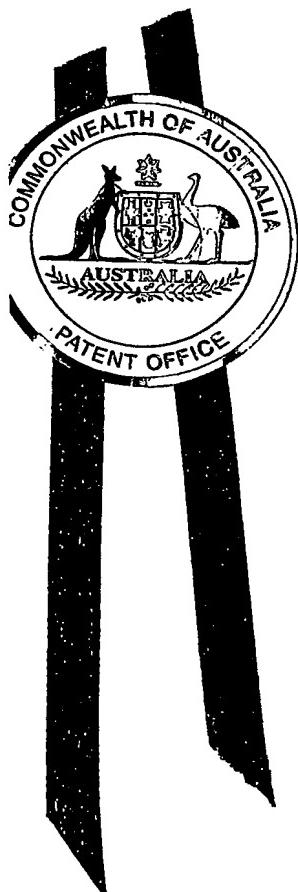
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I, JULIE BILLINGSLEY, TEAM LEADER EXAMINATION SUPPORT AND SALES hereby certify that annexed is a true copy of the Provisional specification in connection with Application No. 2004901824 for a patent by YARRA RIDGE PTY LTD as filed on 05 April 2004.

WITNESS my hand this
Fourteenth day of July 2004

JULIE BILLINGSLEY
TEAM LEADER EXAMINATION
SUPPORT AND SALES



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DESCRIPTION OF THE PREFERRED EMBODIMENTS

Definitions and Conventions Employed

This specification and the provisional applications associated with this application, describe inventions comprising improved complete locks for displaceable wings and improvements for locks for displaceable wings that (for convenience) are referred to herein as "locks" and throughout this specification and claims which follow, unless the context requires otherwise, the word "locks" or variations such as "lock" will be understood to imply the inclusion of complete locks for displaceable wings and improvements for locks for displaceable wings that are transportable into other locks and locking devices without being limited to the complete locks described herein.

This specification describes locks substantially as described herein with reference to and as illustrated in the accompanying drawings.

Throughout this specification and claims which follow, unless the context requires otherwise, the word "comprise", or variations such as "comprises" or "comprising", will be understood to imply the inclusion of a stated integer or group of integers but not the exclusion of any other integer or group of integers.

Throughout this specification and claims which follow, unless the context requires otherwise, the positional prepositions such as rear, forward are used to assist in description of the preferred embodiments and with reference to the accompanying drawings and have in general no absolute significance.

Throughout this specification and claims which follow, unless the context requires otherwise, the word "preferably" or variations such as "prefer" does not mean nor infer that that the inventions described in the "Description of the Preferred Embodiments" are necessarily restricted to the form of an integer or collection of integers referred to as preferred.

Throughout this specification and claims which follow, unless the context requires otherwise, the words wing embraces both doors and windows.

Throughout this specification and claims which follow, unless the context requires otherwise: latching means displacement of an engaging member into engagement with the engageable means under the action of a biasing means,

Latching in relation to hinged doors generally comprises:

'1) displacement (rectilinear and/or angular) of a latch bolt or {advanced latch bolt and an auxiliary bolt as defined below} towards the lock casing by the strike plate and subsequent displacement of the latch bolt into the aperture of the strike plate - in conventional forms this comprises displacement of the latch bolt by a curved or angled wing or lip of the strike plate, or

2) displacement of an auxiliary bolt towards the casing by the strike plate or other member to release the engaging member to enable it to be displaced (rectilinearly and/or angularly) by biasing means to a position where a portion is engaged with the strike plate.

5 Latching in relation to sliding wings generally comprises:

'1) displacement (rectilinear and/or angular) of an engaging member having a hooking portion towards the lock casing and subsequent displacement of the engaging member behind a shoulder of the catch plate to enable the hook to overlap the shoulder whereby to longitudinally engage the catch plate, or

10 '2) displacement of an auxiliary bolt towards the casing to release an engaging member having a hooking portion to displace (rectilinearly and/or angularly) to a position behind a shoulder of the catch plate to enable the hook to overlap the shoulder whereby to longitudinally engage the catch plate, or

'3) rectilinear displacement of an advanced latch bolt (as defined below) with

15 hooking arms and an auxiliary bolt towards the lock casing by the catch plate and subsequent displacement of the latch bolt into the aperture of the catch plate and displacement of each hooking arm behind the peripheral edge of the aperture to overlap the peripheral edge whereby to longitudinally engage the catch plate.

Within this application, latch bolts are displaceable between a fully extended

20 position and a retracted position beyond which the latch bolt cannot be displaced; the latch bolt can also be said to be displaceable between an operative configuration, the configuration in which the bolt finds itself when engaged with the engageable means and an inoperative configuration (defined in this context) by the latch bolt being removed from the said engagement - in the case of rectilinearly displaceable bolts for
25 hinged doors, in the inoperative configuration the bolt is withdrawn from the strike plate aperture and this corresponds with the bolt being substantially within the lock casing and in the operative configuration the bolt is within the aperture of a strike plate and this corresponds with the bolt being substantially fully extended.

A latch-bolt or latch bolt is an outwardly biased bolt capable of executing (or

30 participating in) latching (and includes both rectilinearly displaceable and angularly displaceable bolts) and includes bolts having a leading end that is chamfered or otherwise profiled on one side to facilitate latching and includes advanced latch bolts (both pivotal and rectilinear) that are restrained in a pre-latching configuration prior to latching to either facilitate or assist latching and that in some forms are accompanied
35 by an auxiliary bolt – advanced latch bolts in some forms comprising a prism shaped bolt that in some forms include counter-acting hooks and in some forms includes a

leading end that is chamfered, curved or otherwise profiled on both sides to assist or facilitate latching.

An auxiliary bolt means an outwardly biased plunger that is operably associated with the advanced latch bolt; unlatching means withdrawal of the latch bolt from engagement with the engageable means, i.e. withdrawal from the operative to the inoperative configuration, (for hinged door it commonly means withdrawal of the bolt from the aperture of the strike plate); an unlatching lever is a lever or knob that is hand operable to cause the latch bolt to become unlatched; locking means configuring the lock to restrain it from being unlatched and in some forms of locks employing deadlocking slides, it means restraining the deadlocking slide to restrain the bolt from being inwardly displaced by the unlatching lever; deadlocking means to configure the lock to restrain the bolt from being displaced from the operative configuration (in the case of a rectilinearly displaceable bolt for a hinged door, it commonly means restraining the bolt in a fully extended position), the deadlocking means is some forms includes a deadlocking slide that is displaceable to cooperate with the bolt to restrain it against displacement; deadlocked means the bolt cannot be displaced from the operative configuration by external forces; deadlatching means the bolt is automatically deadlocked during latching; remote lock means a locking means disposed from the lock that includes a remote engaging member that is operably connected to the lock (often there is an upper and a lower remote bolt situated above and below the lock); French Door means a door comprising a frame with a glass in-fill and often configured in pairs, a second door that is normally closed and is secured by vertical bolts and a first door that has the lock body and operable levers, often they have a strip of compressible sealing material located on the edge against which the first door closes to prevent energy loss, many French Doors comprise a hollow frame where the hollow within the frame is comparatively small in depth; Security Doors means a door comprising a hollow framed door with an in-fill of mesh or woven stainless steel where the hollow within the frame is comparatively small in depth and in width; lock body is the lock portion fitted within the hollow frame of the wing, the lock body together with a strike plate, a pair of handle sets and a cylinder comprising a typical mortice lock; depth of lock body is the extent of the lock body in a direction parallel to the face of the door; width of lock body is the extent of the lock body in a direction at right-angles to the face of the door; single cylinder is a cylinder comprising a key operable barrel within a cylinder housing (in one form and commonly it comprises a barrel operably connected to a first cam having a radially protruding arm); double-cylinder comprises opposed barrels each operably connected to the same first cam; clutched-double-cylinder comprises a cylinder

having opposed barrels each connectable without free movement to the same first cam such that the cam can be angularly displaced by a barrel while the other barrel remain undisplaced, the cylinder includes a clutch to select which barrel is the operative barrel, the clutch being operated after key insertion; free rotation single

- 5 cylinder is a cylinder comprising a key operable barrel within a cylinder housing operably connected with free movement to a first cam to enable the cam to be displaced by barrel to a locking configuration and then the barrel to be reverse rotated to an undisplaced position enabling key removal; free rotation-double-cylinder comprises opposed barrels each connected with free movement to the same first
- 10 cam such that the cam is free (between limits) to be angularly displaced while the barrels remain undisplaced, this type of cylinder being commonly used in security door locks in Australia to enable the cam to be displaced by either barrel to a locking configuration and then the barrel to be reverse rotated to an undisplaced position enabling key removal while leaving the first cam in the locking position, (this type of
- 15 cylinder being distinct from the double cylinders that employ clutches); in some forms of both clutched and free rotation cylinders, one barrel is replaced by a hand operable turn knob; some single cylinder comprise a subassembly including a housing while in others, the housing comprises part of the handle backplate; some double cylinders comprise a subassembly including a housing while in others, the
- 20 double cylinder housing comprises portions of the handle backplate; a pivotal lock is defined herein as a lock having an angularly displaceable bolt herein called a pivotal bolt; a rectilinear lock is defined herein as a lock having a rectilinearly displaceable bolt herein called a rectilinear bolt.

Description of the Figures

- 25 Embodiments of the present invention will now be described by way of example only with reference to the accompanying drawings in which:

Fig 1 is an isometric view of a handle set when viewed from the underside configured as left handed and downwardly displaced to the maximum normal operating disposition,

- 30 Fig 2 is an isometric view of a handle set when viewed from the underside configured as left handed and upwardly displaced to the maximum normal operating disposition,

Fig 3 is an exploded view of Fig 1,

- 35 Fig 4 is the handle assembly of Fig 1 with the lever displaced 80 degrees to release the stronger spring,

Fig 5 is the handle set of Fig 1 configured as right handed.

This application relates to the provisional application 2004 901453 filed 19/3/04 by Yarra Ridge that is included herein by reference. This application employing the nomenclature, numbering and definitions of 2004 901453 corrects a number of errors in that application.

- 5 According to the invention, there is an unlatching lever having a substantially cylindrical shank portion 237 that is supported within a substantially cylindrical through aperture 238 in an substantially cylindrical underside boss 239 of the lever backplate 240, the aperture having an opening to the face of the back plate and terminating within the underside of the backplate in a circular annular washer-face
10 241. The shank preferably has a sideways protruding retention shoulder 242 and underside boss is longitudinally slotted 243 to provide passage for the retention shoulder – the slot 230 and retention shoulder being configured such that in normal operation they are never aligned. In usage, the shank is fed through the slot and it is then rotated so that the retention shoulder abuts the annular washer-face.
15 In other handle sets, the lever is retained by a circlip fitted to the shank of the lever beneath a disc-like member as is common.

The invention provides a springing system for a lever that provides for simple and ready conversion between handed types and without the use of hand tools. It provides biasing for a lever that biases the lever towards an undisplaced disposition
20 irrespective of the direction in which it has been displaced from the undisplaced disposition.

In some embodiments, the lever is attached to the disc-like member supported on the lever shaft on the underside of the backplate. The disc-like member having inwardly projecting substantial radial fingers that locate in longitudinally
25 elongated slotted recesses of the lever shaft to couple the disc-like member and lever shaft. The disc-like member has a pair of substantially horizontally opposed apertures to receive return portions of a pair or substantially vertically disposed tension springs wherein at a position radially disposed from the lever pivotal axis (disposed towards the lever arm) one aperture is connected to an extended softer spring (this spring having a longitudinal axis that does not intersect the axis of the rotation of the lever and therefore giving rise to a moment on the disc-like member urging it to rotate in a first direction). The other aperture is connected to a substantially unextended harder spring (having a longitudinal axis that does not intersect the axis of the rotation of the lever and therefore giving rise to a moment on
30 the disc-like member urging it to rotate in a direction opposite the first direction). The stronger spring in this function acts as a solid member whose length is configured to retain the handle in an undisplaced disposition (commonly a horizontal lever). The
35

402 is from behind the rail when the lever is so downwardly displaced to enable the spring end 403 to be disconnected from the rail. When the lower portion of the softer spring has displaced to be past the pivotal axis of the shaft recess (and the fitting-shaft), the stronger spring end 403 is re-attached to the rail by placing the end 5 portion 402 behind the rail on the rail. Lever displacement back into the normal operating range causes the U shaped end 403 to be engaged with the rail as described above and so the lever displaces towards the undisplaced position the spring end 401 displaces outwardly by sliding along the rail to assume an undisplaced position that is on the opposite end of the rail from which it was before 10 re-handing and the portion strong spring adjacent the end 403 is similarly displaced to an end of the rail opposite that from which it was released. At that time the fitting-shaft is removed.

The cupped member before fitting of the shaft, abuts the boss to be supported by the boss but during fitting of the shaft, the cupped member is slightly displaced to 15 be supported by the shaft with operating clearance between the cupped member side walls and the side walls of the underside boss so that the friction exerted on the moving assembly (of cupped member, unlatching lever and drive shaft) is minimized – the cupped member being restrained horizontally between the circular annular washer-face 241 and the wing against which it is fixed. The rail, as shown in Fig 1, 20 comprises a simple, horizontally elongated member 405, preferably cylindrical in form, having a right angled return portion 406 at each end that are inserted into apertures 407 in the underside of the backplate to be retained there by friction and/or the side wall of the wing to which the handle assembly is attached.

In some forms of the invention (where the lever is not required to be displaced 25 upwardly) the harder spring is replaced by an in-extendable member that acts only as a stop to restrain the lever against rotation in one direction and in some forms this comprises a link having return on each end as does the harder spring.

When the mechanism described above is applied to a lock having a latch bolt, it is preferable that the lever and backplate be configured so that downwards lever 30 operation causes the bolt to retract (while further extending the softer spring) and upwards operation causes remote bolts to be driven outwardly (while extending the harder spring). However, it is perfectly acceptable for the lever and backplate be configured so that downwards lever operation causes the bolt to retract (while extending the harder spring) and upwards operation causes remote bolts to be driven outwardly (while further extending the softer spring). The lock can, within this 35 invention, be further configured so that the latch bolt is retracted by upward lever displacement and the remotes are driven out by downwards displacement.

- The lock can, within this invention have a lever reversed simply by rotating the lever to the other side as required by the other handing if the drive shaft is not within the cupped member and lever because without the shaft there is no operable connection between the lever and cupped member – in this case however, in one
- 5 handing unlatching is achieved against a softer spring, while in the other, unlatching is achieved against a harder spring.

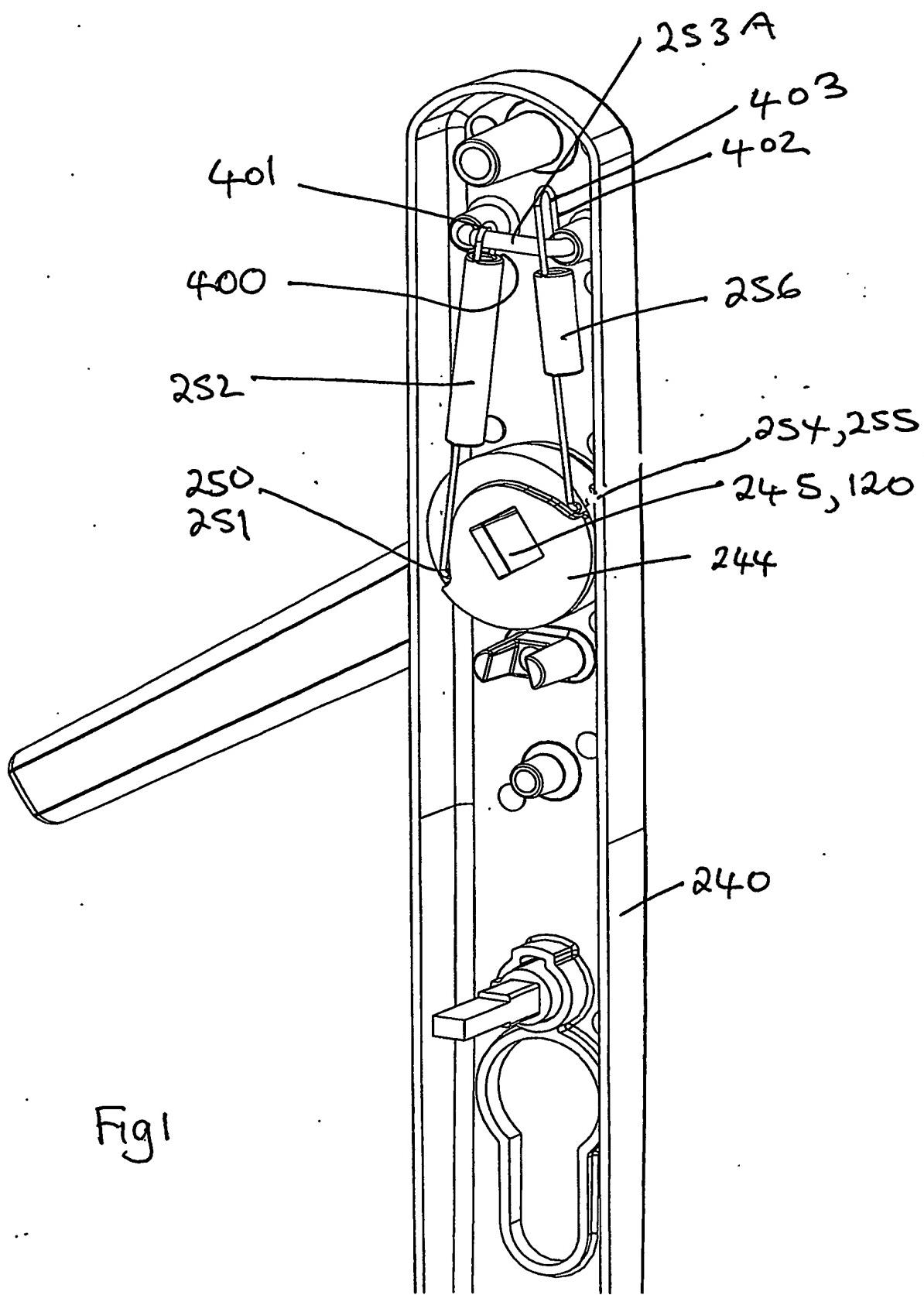


Fig 1

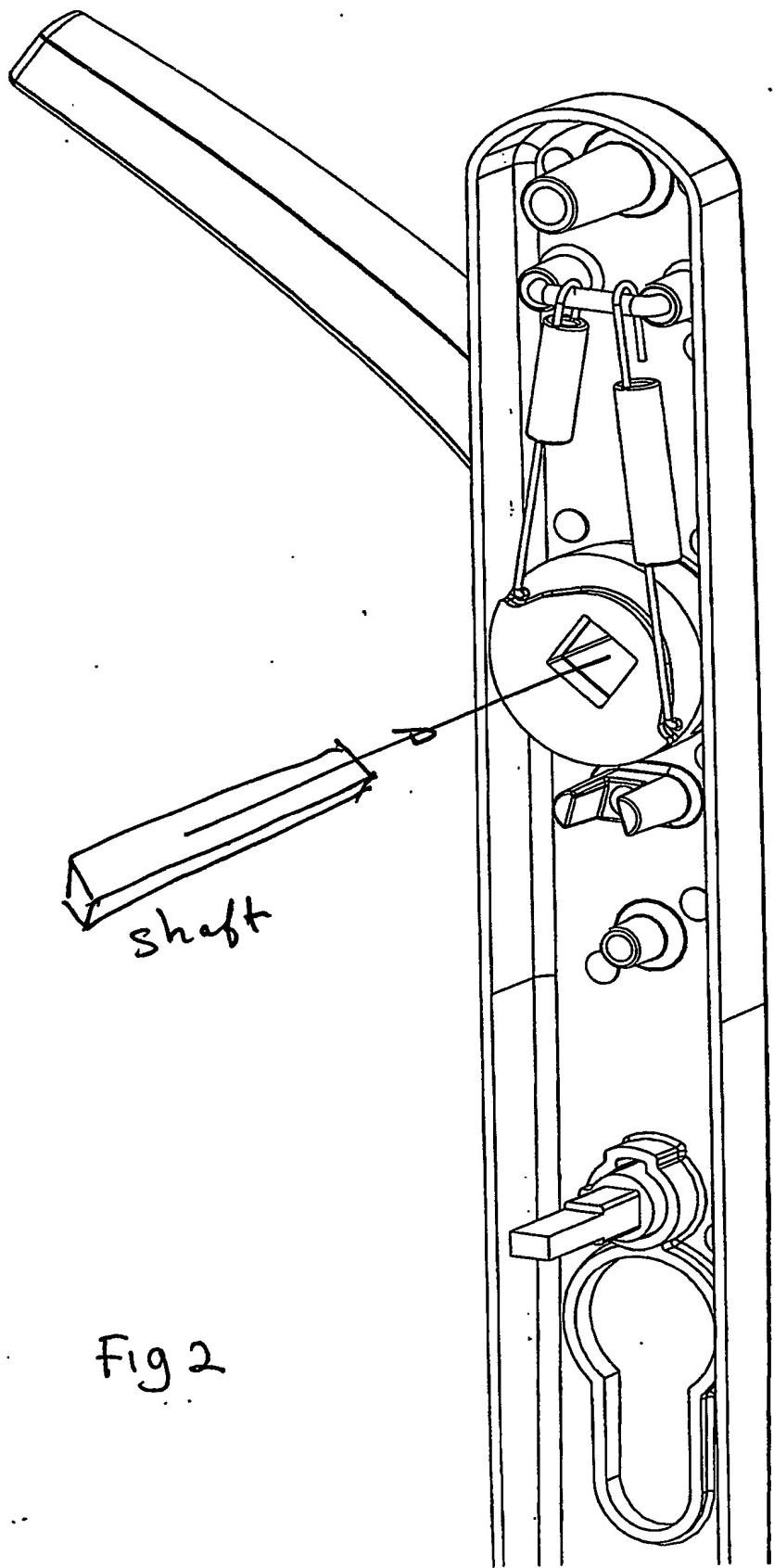


Fig 2

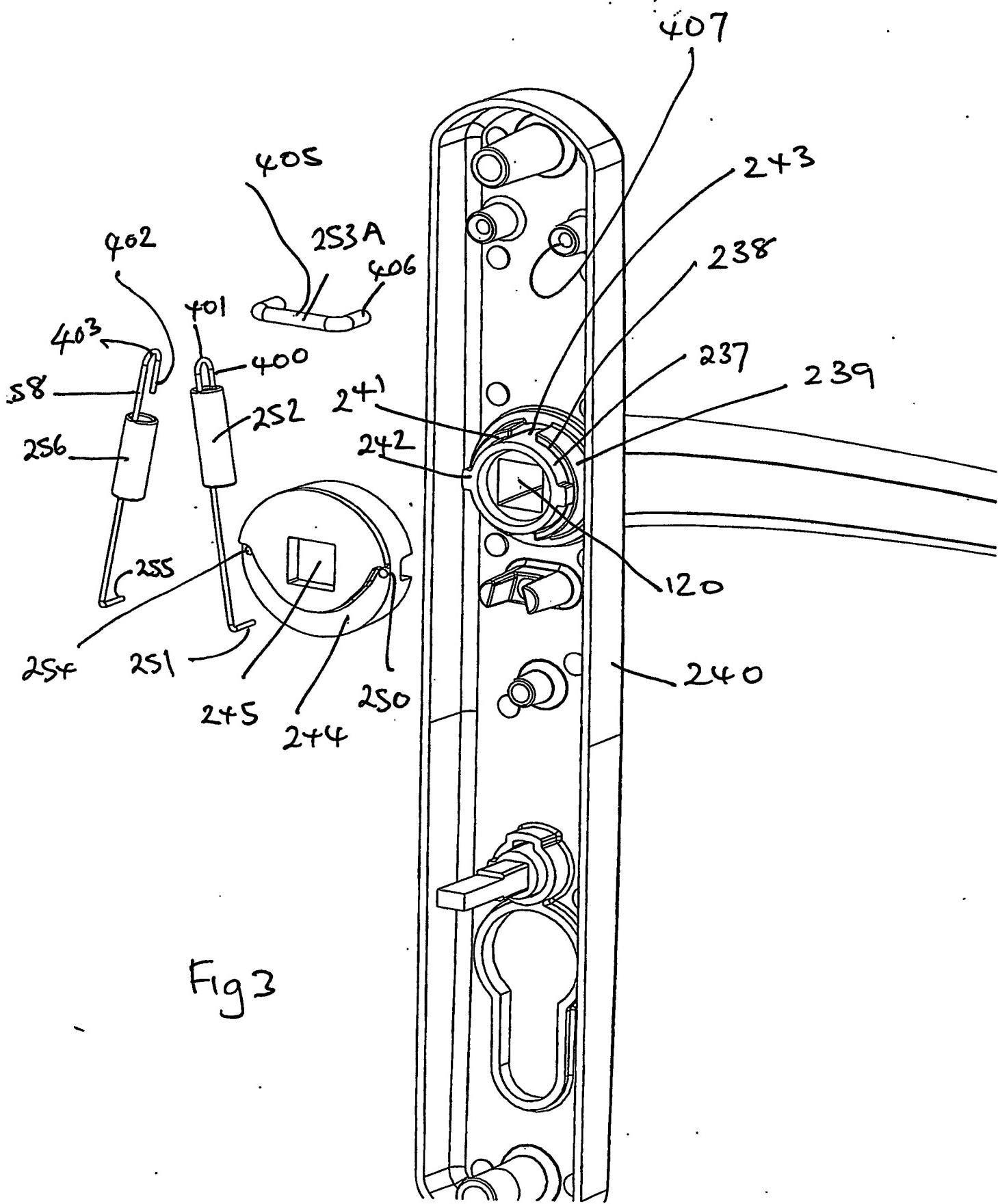


Fig 3

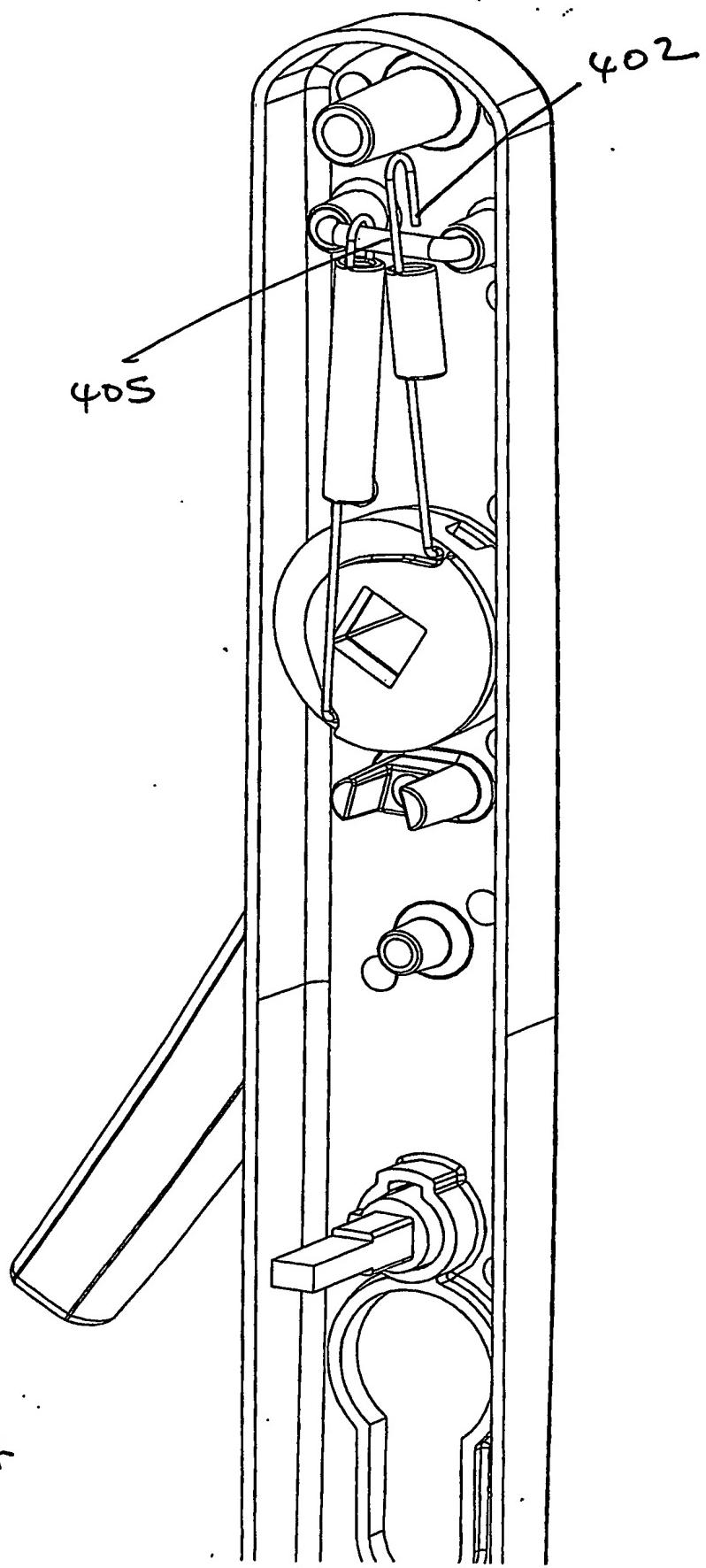


Fig 4

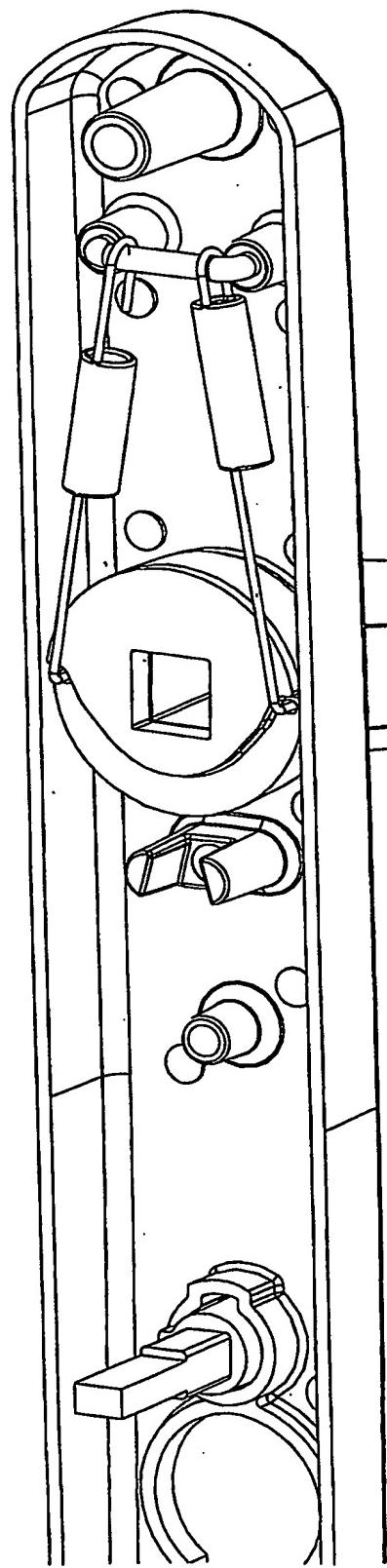


Fig 5

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